1964

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

REPORT

relating to the proposed construction of

STAGE TWO

of the

LAND RESEARCH AND REGIONAL SURVEY LABORATORIES

for the

COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANIZATION

at

BLACK MOUNTAIN, AUSTRALIAN CAPITAL TERRITORY

For Senator Anderson.

I present the Report of the Parliamentary Standing Committee on Public Works, relating to the following proposed work :-

Construction of Stage Two of the Land Research and Regional Survey Laboratories for the Commonwealth Scientific and Industrial Research Organization at Black Mountain, Australian Capital Territory

19/5/64

C O N T E N T S

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

C.S.I.R.O. LAND RESEARCH AND REGIONAL SURVEY LABORATORY, BLACK MOUNTAIN, A.C.T.

REPORT

By resolution on 16th April, 1964, the House of Representatives referred to the Parliamentary Standing Committee on Public Works for investigation and report, the proposal to erect stage two of the Land Research and Regional Survey Laboratories for the Commonwealth Scientific and Industrial Research Organization at Black Mountain, Australian Capital Territory. The Committee have the honour to report as follows :-

General

1. The Committee visited the site for the proposed building and inspected the accommodation provided for the Land Research and Regional Survey Laboratories in the completed first stage. Plans and a model were available to the Committee and evidence was heard from representatives of the C.S.I.R.O. and Commonwealth Department of Works.

Role of the Division of Land Research and Regional Survey.

2. The overall objective of the Division of Land Research and Regional Survey is to define improved forms of land use, mainly in Northern Australia and New Guinea by means of regional surveys of land form, soils, climate, vegetation and surface and underground water and to conduct research into possible forms of land use adapted to specific environments in these regions.

3. Techniques have been developed for carrying out rapid surveys of large areas with the use of extensive aerial photographic interpretation. These techniques have established an international reputation for the Division - they have been widely adopted overseas and are recommended by F.A.O. and U.N.E.S.C.O. as being an extremely valuable first step in assessing the possibilities of development in under-developed countries.

4. After the initial surveys, it is necessary to interpret the factual data in terms of possible land use. In view of the virtual absence of established agriculture in Northern Australia and

the marked difference in conditions from other parts of the country where mechanised agriculture is established, it is necessary to set up field experiment stations to assess the possibilities of improved land use on selected land types. Such stations have been established at Katherine, Alice Springs and near Darwin in the Northern Territory and in the Kimberleys in Western Australia.

5. For surveys carried out in New Guinea and the more developed parts of Australia, land use interpretation by the Division has been limited to defining the major limitations of the various types of land. The experimental and developmental work following these surveys is the responsibility of the State authorities.

6. The activities described need to be supported by more detailed basic studies of plants in relation to their environment, particularly climate and soil. This work is carried out both at the field stations and at the laboratories in Canberra and includes research in the fields of plant-soil-air-water relationship, crop physiology, nitrogen cycle in the soil and plant, soil physics and soil agronomy.

7. All this work results in the definition of the possibilities of plant and animal production on various types of country. It is then necessary to relate this information to socio-economic factors in assessing the possibilities of agricultural development. The lack of development in northern Australia poses particular problems in the social and economic fields and research of this nature is conducted in close collaboration with the Bureau of Agricultural Economics of the Department of Primary Industry.

8. In carrying out this research the scientists of the Division of Land Research and Regional Survey are in the field for about three months and they then spend fifteen to eighteen months completing a project. They then work in research in their own fields for six to nine months, of which about six weeks would consist of work in the field. In a two year period, therefore, the scientists would spend some 4½ months in the field.

9. The Division has achieved success in fields such as irrigated agriculture in monsoonal Australia, the cattle industry in monsoonal Australia, productivity of arid zone plant communities and rice-growing in monsoonal Australia. Reference has already been made to regional survey techniques.

10. The laboratories are currently engaged in a survey of the brigalow country of Queensland in order to provide basic information for the State authorities in planning the development of this region. During this winter, a survey will be made of Bougainville Island which, in the belief of the New Guinea Administration, has high potential for agricultural development.

11. In collaboration with the soil mechanics section of C.S.I.R.O., regional resources data is being used for engineering interpretation of the land including determination of the suitability of various lands as foundations for road construction and also to wider applications in foundation engineering and aspects of water control engineering. When time permits, special studies in aerial photographic interpretation are being made, particularly to determine drainage characteristics of landscape evolution, soil evolution and plant environment relationships. To overcome the difficult problem of classifying and correctly identifying plants in relatively little known areas like northern Australia and New Guinea, a taxonomy group has been built up to provide service for both regional surveys and field stations.

12. Requests for surveys are far beyond the capabilities of the survey group within the next ten years. These include completion of the survey of the higher rainfall parts of north-eastern Queensland, which will take from five to six years, the northern rivers and southern tablelands of New South Wales (2 years), the whole of the grazing lands of South Australia (4 years) and further surveys in the northern part of the Northern Territory (4 to 6 years). The areas to be surveyed each year are selected by an inter-departmental committee with representation from the departments of National Development, Territories and Primary Industry.

Existing Accommodation.

13. The headquarters of the Division of Land Research and Regional Survey is at Black Mountain. At the present time, staff is located in the recently completed first stage of the laboratory, in offices at Manuka, A.C.T. and in an old laboratory at Black Mountain.

14. The first stage of the laboratory building provides a standard of accommodation suitable for the Division's work but the rented space at Manuka, apart from being too small, was not planned for its present use.

The Need to Build the Second Stage.

15. The Division has only been consolidated at Black Mountain for seven of its 18 years' existence. The regional survey resources group occupied rented accommodation at Civiv Centre from 1948 to 1953 and from 1959 to 1960 when it moved to the space it now occupies at Manuka.

16. Time is lost and efficiency is impaired when groups who should work in intimate contact are located on opposite sides of Canberra. The group at Manuka is not only removed from the remainder of its division but also from the C.S.I.R.O. complex.

17. In physical, mechanical and biological laboratories, an average area of 350 square feet per person is generally adopted by C.S.I.R.O. as a standard. This is supported by comparison with similar laboratories overseas.

18. The first stage of the laboratory relieved over-crowding in some sections and provided staff with more space than the average of 156 square feet they had been occupying. Herbarium staff who are not to occupy the new building and others who will move to the second stage were able to expand into space located in the old laboratory. The regional resources survey group continues to be overcrowded at Manuka where the average space per person is 243 square feet for a staff of 37.

19. In order to consolidate the activities of the Division of Land Research and Regional Survey and to accommodate the staff in adequate and suitable space, there is a need to construct the second stage of the laboratory.

The Laboratory Building - Stage I.

20. The first stage of the laboratory was completed at the end of 1963 at a cost of £159,775. It provides 17,600 square feet of gross space for laboratories, offices, stores, library, cafeteria, workshop and rooms for computor, soil preparation, lecture/conference, boiler and plant in a three-storey building with a single storey link to the second stage.

21. The C.S.I.R.O. officers regard the laboratory as one of the most pleasing and satisfactory built for them in recent years.

22. Quality of Brickwork. During our inspection of the building, we observed poor quality bricks and different sized joints in the eastern wall. These detract from the appearance of the building. Arising from questions, we concluded that supervision of the work was inadequate and we recommend stricter supervision during construction of the second stage in order to achieve a better standard of finish.

The Laboratory Building - Stage II.

23. The second stage of the laboratory is to be erected north of the first stage joining it by the link which has already been erected. The same design theme as the first stage will be used.

24. The Site. The site is on the northern part of the C.S.I.R.O. establishment at Black Mountain, Canberra, in an area set aside for the Division of Land Research and Regional Survey on the master plan. It is in a wooded landscape setting where as many existing trees as possible have been preserved.

25. Design and Structure. The laboratory has been designed as a simple functional building, elevations being faced with dark coloured bricks and the structural frame exposed. The completed building will form an open square with the two three-storey blocks linked by the single storey entrance feature which will be approached through a garden setting.

26. The new block, like the one already completed, has been orientated with its long axis on an east-west line in order to provide constant, natural, southern light for the laboratories. The northern side will be sub-divided into offices and ancillary rooms. Sun hoods will provide sun protection over the northern windows of the building.

27. Reinforced concrete columns will support flat plate concrete floors. The structure will depend for its lateral stability on four reinforced concrete shear walls - one at each end and two internally. A general floor loading of 60 lbs. per square foot live load will be used in the design plus an allowance for light weight partitions. Provision will be made for higher loads in specific areas.

28. Accommodation. The lower ground floor will provide space for a plant room and initially for open storage. The open areas will be capable of enclosure later. The ground floor will contain the photographic, cartographic, and geomorphological sections, offices and toilets Laboratories, offices, photographic rooms and toilets will occupy the first floor.

29. Initially the new wing will accommodate a staff of 39. This figure is expected to rise to 65 about five years after the building is finished, giving a total for the two wings of 119 at that time. This will give an average area per person of 382 square feet but if the basement storage area of 4,700 square feet is excluded, the average reduces to 343 square feet.

30. Materials and Finishes. External walls will be constructed with dark coloured brick infill panels between the exposed concrete framework Windows will be framed in aluminium and the roof will be of corrugated asbestos cement.

31. Walls in feature areas will be of face brickwork and elsewhere of brick rendered with plaster. The majority of internal partitions will be timber framed and sheeted with fibrous plaster to permit maximum flexibility. On the lower ground floor, brick partitions will be of face brickwork and the reinforced concrete walls will be finished "off the form".

32. Except in the isotope laboratories where a poly vinyl acetate coating will be sprayed on ceilings and walls, ceilings will be of fibrous plaster.

33. Concrete paving is to be used for the lower ground floor and elsewhere floors will be covered with linoleum, vinyl tiles, ceramic tiles or cork tiles, depending on the area.

34. Laboratory Fittings. Standard benches will be installed and they will be serviced with hot and cold water, compressed air, gas and electricity to meet the functional requirements of the C.S.I.R.O.

35. Engineering Services. Electrical engineering services will include hot cathode fluorescent luminaires generally and incandescent lamps. Safelights will be provided where necessary for photographic processing. Fixed electrical equipment will be direct wired and general purpose outlets will be provided for portable equipment including laboratory apparatus, computing machines, microscopy and other facilities. Synchronous clocks will be installed where necessary.

36. There will be a thermal fire alarm system connected to the nearest station of the Canberra Fire Brigade.

37. One electro-hydraulic goods lift of 2,600 lbs. capacity with a speed of approximately 65 feet per minute will serve the three floors of the building for the transport of goods and scientific apparatus.

38. Mechanical engineering services will include air-conditioning for photographic interpretation, procota tracing, process camera and dark room areas, while fume cupboards will have exhaust ventilation. Other items are space heating, domestic hot water, compressed air, gas, filtered water, portable fire extinguishers and sanitary incinerator.

39. Construction of the building to the size and design proposed is recommended.

Fire Protection.

40. In our recent report on the proposed Regional Laboratory for C.S.I.R.O. at Shenton Park, Western Australia, reference was made to the absence of features for the preservation of scientific records.

Similar comments apply to this building. We have been told that the C.S.I.R.O. safety officer who was appointed recently is giving attention to this.

41. We again draw attention to this matter and recommend that special precautions be taken for the preservation of important scientific records against loss by fire.

Construction Timetable.

42. The time required to complete contract documents, invite tenders and accept a contract is expected to be 20 weeks and construction of the building is expected to take approximately 65 weeks.

Estimates of Cost.

43. The estimated cost of the work proposed is £237,000, made up as follows :-

	£
Building work	174,000
Electrical work	28,000
Mechanical work	24,000
Work outside contract	3,000
Provision for benches, etc.	8,000
	£237,000

Summary of Recommendations and Conclusions.

44. A summary of the recommendations and conclusions of the Committee is set out below and alongside each is shown the paragraph to which it refers. Recommendations appear in bold type.

	Paragraph
(1) In order to consolidate the activities of the Division of Land Research and Regional Survey and to accommodate the staff in adequate and suitable space, there is a need to construct the second stage of the laboratory.	19
(2) CONSTRUCTION OF THE BUILDING TO THE SIZE AND DESIGN PROPOSED IS RECOMMENDED	39

		Paragraph
(3)	SPECIAL PRECAUTIONS SHOULD BE TAKEN FOR THE PRESERVATION OF IMPORTANT SCIENTIFIC RECORDS AGAINST LOSS BY FIRE.	41
(4)	POOR QUALITY BRICKWORK DETRACTS FROM THE APPEARANCE OF THE FIRST STAGE AND STRICTER SUPERVISION OF THE SECOND STAGE IS RECOMMENDED IN ORDER TO ACHIEVE A BETTER STANDARD OF FINISH.	22
(5)	The estimated cost of the work proposed is £237,000.	43

R. L. Dean

(R.L. Dean)
Chairman.

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19th May, 1964.